IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
(Attorney Docket № 14167US02)

In the Application of:

Jeyhan Karaoguz, et al.

Serial № 10/658,161

Filed: September 9, 2003

For: METHOD AND SYSTEM FOR PROVIDING A SUPER CHANNEL IN A MULTI-BAND, MULTI-PROTOCOL HYBRID WIRED/ WIRELESS NETWORK

Examiner: Wanda Z. Russell

Group Art Unit: 2462

Confirmation № 5714

Electronically filed on 13-JAN-2011

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from an Office Action dated October 13, 2010 ("Final Office Action"), in which claims 1-42 were finally rejected. The Appellant respectfully requests that the Board of Patent Appeals and Interferences ("Board") reverses the final rejection of claims 1-42 of the present application. The Appellant notes that this Appeal Brief is timely filed within the period for reply that ends on January 13, 2010.

REAL PARTY IN INTEREST
(37 C.F.R. § 41.37(c)(1)(i))

Broadcom Corporation, a corporation organized under the laws of the state of California, and having a place of business at 5300 California Avenue, Irvine, California 92617, has acquired the entire right, title and interest in and to the invention, the application, and any and all patents to be obtained therefor, as set forth in the Assignment recorded at Reel 014222, Frame 0336 in the PTO Assignment Search room.

RELATED APPEALS AND INTERFERENCES
(37 C.F.R. § 41.37(c)(1)(ii))

The Appellant is unaware of any related appeals or interferences.

STATUS OF THE CLAIMS
(37 C.F.R. § 41.37(c)(1)(iii))

The present application includes pending claims 1-42, all of which stand rejected under 35 U.S.C. § 103(a). *See* the Final Office Action at page 2. The Appellant identifies claims 1-42 as the claims that are being appealed. The text of the pending claims is provided in the Claims Appendix.

STATUS OF AMENDMENTS
(37 C.F.R. § 41.37(c)(1)(iv))

The Appellant has not amended any claims subsequent to the final rejection of claims 1-42 mailed on October 13, 2010.

SUMMARY OF CLAIMED SUBJECT MATTER
(37 C.F.R. § 41.37(c)(1)(v))

Independent claim 1 recites the following:

A method for providing enhanced connectivity in a multi-band, multi-protocol network, the method comprising:

aggregating messages from a physical layer of each communication band and each communication channel associated with each of a plurality of protocols in a single multi-protocol layer of the multi-band, multi-protocol network[1];

identifying an optimal communication path from among said communication band and said communication channel based on said aggregated messages in said single multi-protocol layer[2]; and

establishing a communication session using said identified optimal communication path[3].

Independent claim 11 recites the following:

A machine-readable storage, having stored thereon, a computer program having at least one code section for providing enhanced connectivity in a multi-band, multi-

[1] *See* present specification at, e.g., p. 8, lines 2-7; p. 13, lines 2-8; p. 22, line 26 – p. 23, line 10; Fig. 4 (aggregation performed using the super channel 414).
[2] *See id.* at, e.g., p. 13, lines 8-11; Fig. 4 and p. 23, lines 11-21.
[3] *See id.* at, e.g., p. 13, lines 11-13; Fig. 4 and p. 23, lines 11-21.

protocol network, the at least one code section being executable by a machine for causing the machine to perform steps comprising:

aggregating messages from a physical layer of each communication band and each communication channel associated with each of a plurality of protocols in a single multi-protocol layer of the multi-band, multi-protocol network[4];

identifying an optimal communication path from among said communication band and said communication channel based on said aggregated messages in said single multi-protocol layer[5]; and

establishing a communication session using said identified optimal communication path[6].

Independent claim 21 recites the following:

A system for providing enhanced connectivity in a multi-band, multi-protocol network, the system comprising:

means for aggregating messages from a physical layer of each communication band and each communication channel associated with each of a plurality of protocols in a single multi-protocol layer of the multi-band, multi-protocol network[7];

---

[4] *See id.* at, e.g., p. 8, lines 2-7; p. 13, lines 2-8; p. 22, line 26 – p. 23, line 10; Fig. 4 (aggregation performed using the super channel 414).
[5] *See id.* at, e.g., p. 13, lines 8-11; Fig. 4 and p. 23, lines 11-21.
[6] *See id.* at, e.g., p. 13, lines 11-13; Fig. 4 and p. 23, lines 11-21.

means for identifying an optimal communication path from among said communication band and said communication channel based on said aggregated messages in said single multi-protocol layer[8]; and

means for establishing a communication session using said identified optimal communication path[9].

Independent claim 31 recites the following:

A system for providing enhanced connectivity in a multi-band, multi-protocol network, the system comprising:

a physical layer for aggregating messages from of each communication band and each communication channel associated with each of a plurality of protocols in a single multi-protocol layer of the multi-band, multi-protocol network[10];

at least one processor adapted to identify an optimal communication path from among said communication band and said communication channel based on said aggregated messages in said single multi-protocol layer[11]; and

---

[7] *See id.* at, e.g., p. 8, lines 2-7; p. 13, lines 2-8; p. 22, line 26 – p. 23, line 10; Fig. 4 (aggregation performed using the super channel 414).
[8] *See id.* at, e.g., p. 13, lines 8-11; Fig. 4 and p. 23, lines 11-21.
[9] *See id.* at, e.g., p. 13, lines 11-13; Fig. 4 and p. 23, lines 11-21.
[10] *See id.* at, e.g., p. 8, lines 2-7; p. 13, lines 2-8; p. 22, line 26 – p. 23, line 10; Fig. 4 (aggregation performed using the super channel 414).
[11] *See id.* at, e.g., p. 13, lines 8-11; Fig. 4 and p. 23, lines 11-21.

said at least one processor adapted to establish a communication session using said identified optimal communication path[12].

Independent claim 41 recites the following:

A system for providing enhanced connectivity in a multi-band, multi-protocol network, the system comprising:

a physical layer[13];

a MAC layer above, and interfacing with, said physical layer[14]; and

a multi-protocol layer above, and interfacing with, said MAC layer[15].

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL (37 C.F.R. § 41.37(c)(1)(vi))

Claims 1-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over USP 6,643,292 ("Chapman"), in view of USPP 2002/0131363 ("Beshai"), and USP 6,578,086 ("Regan").

[12] *See id.* at, e.g., p. 13, lines 11-13; Fig. 4 and p. 23, lines 11-21.
[13] *See id.* at, e.g., p. 21, line 26 – p. 24, line 16; Fig. 4 (physical/PHY layer 418).
[14] *See id.* at, e.g., p. 21, line 26 – p. 24, line 16; Fig. 4 (MAC layer 416).
[15] *See id.* at, e.g., p. 21, line 26 – p. 24, line 16; Fig. 4 (multi-protocol layer 414).

ARGUMENT
(37 C.F.R. § 41.37(c)(1)(vii))

In the Final Office Action, claims 1-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over USP 6,643,292 ("Chapman"), in view of USPP 2002/0131363 ("Beshai"), and USP 6,578,086 ("Regan").

I. The Proposed Combination of Chapman, Beshai and Regan Does Not Render Claims 1-42 Unpatentable

A. Independent Claims 1, 11, 21, 31 and 41

1. The Examiner Has Not Established That It Would Be Obvious To Combine Chapman, Beshai and Regan

With regard to the rejection of independent claim 1 under 35 U.S.C. § 103(a), the Appellant submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "identifying an optimal communication path from among said communication band and said communication channel based on said aggregated messages in said single multi-protocol layer," as recited by the Appellant in independent claim 1.

The Office Action states the following:

> For claims 1, 11, 21, 31, and 41, Chapman teaches a method, a machine-readable storage (see processor and protocols in Fig. 8. It means that machine-readable storage is used), a system (see Fig. 8) for providing enhanced connectivity (packet data transport mechanism, see title) in multi-protocol network (TCP/IP, see Fig. 8, and DHCP, see col. 5, line 17, and RSVP, see col. 6, line 50. All are used for this system. In addition, it is known in the art that based on IEEE 802.11 standard, measurement protocol and TPC protocol can be used), comprising:

> aggregating messages of each communication channel from a physical layer (see Encapsulation Module 84 in Fig. 8; In Internet terminology, aggregating traffic streams by encapsulating them into a single IP stream is often called tunneling, see col. 2, lines 55-57) of each communication channel (see three customer equipments to input module in Fig. 8. Each customer equipment occupies a channel) associated with each of a plurality of protocols (TCP/IP, see Fig. 8, and DHCP, see col. 5, line 17, and RSVP, see col. 6, line 50) in a single multi-protocol layer of the multi-protocol network (see 84 in Fig. 8, and It is commonly understood in the field of the present invention that a layer under the networking layer is called "transport" layer ... This is in contrast to the layered model of the OSI, see col. 2, lines 33-35 and lines 33-42).
>
> However, Chapman fails to specifically teach the connectivity in a multi-band.
>
> Beshai teaches the connectivity in a multi-band (multi-band network, see [0100]).
>
> Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Chapman with Beshai to obtain the invention as specified, for varieties of users and services.

See Office Action at pages 2-3. In the Office Action, the Examiner has conceded that the combination of Chapman and Beshai does not disclose the above limitation. More specifically, the Office Action (at p. 3) states:

> Further, Chapman in view of Beshai does not teach identifying an optimal communication path from among said communication channel based on said single multi-protocol; and establishing a communication session using said identified optimal communication path.

The Examiner then relies for support on Regan and states the following:

> Regan teaches
>
> identifying an optimal communication path from among said communication channel based on said aggregated messages in said single multi-band, multi-protocol layer (identify the optimal network routing paths at the link layer, see col. 2, lines 5-6. As shown above, the link layer has aggregated messages in the single multi-band, multiprotocol layer); and

> establishing a communication session using said identified optimal communication path (see 202/204 with TX in Fig. 2. It is known in the art that once the optimal communication path is established, it will be used for establishing a communication session. Refer to cited Melick reference as evidence, see Abstract).
>
> Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Chapman with Beshai and Regan to obtain the invention as specified, for efficient transmission of the packets/sessions to save time and cost through optimum path.

(*See* Office Action at p. 3-4). Putting aside for the moment whether or not this is an accurate assessment of Regan, the Examiner fails to provide "articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness" in the detailed manner described in KSR.

Specifically, the Examiner is required to provide "some articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness." *See KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) quoting *In re Kahn*, 441 F.2d 997,988 (CA Fed. 2006). Put another way, the Examiner should "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR*, 127 S. Ct. at 1741. The Examiner should make "explicit" this rationale of "the apparent reason to combine the known elements in the fashion claimed," including a detailed explanation of "the effects of demands known to the design community or present in the marketplace" and "the background knowledge possessed by a person having ordinary skill in the art." *Id.*

The Examiner attempts to support the combination of *Chapman and Beshai* as follows:

> Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Chapman with Beshai **to obtain the invention as specified, for varieties of users and services**.

(*See id.*, p. 3; emphasis added). In addition, the Examiner attempts to support the combination of *Chapman, Beshai and Regan* as follows:

> Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Chapman with Beshai and Regan **to obtain the invention as specified, for efficient transmission of the packets/sessions to save time and cost through optimum path**.

(*See id.*, p. 4; emphasis added). These unsupported, conclusory allegations do not provide "articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness" in the detailed manner described in KSR. Instead, the Office Action appears to be proposing the combinations based solely on improper hindsight. The generic benefit statements of "to obtain the invention as specified, for varieties of users and services" and "to obtain the invention as specified, for efficient transmission of the packets/sessions to save time and cost through optimum path" do not constitute an articulated reasoning with a rational underpinning, as required by the MPEP. As such, the rejections based on the proposed combinations of Chapman, Beshai and Regan are improper and should be withdrawn.

2. Even If Combined, Chapman, Beshai and Regan Fail To Disclose Or Suggest All Of The Elements Of Claims 1-42

Even if Chapman, Beshai and Regan are combined in the manner suggested by the Office Action, claims 1-42 are still patentable because the resulting combination does not disclose or suggest at least the limitation of "identifying an optimal

communication path from among said communication band and said communication channel based on said aggregated messages in said single multi-protocol layer," as recited by the Appellant in independent claim 1. The Office Action states the following with regard to the teachings of Regan:

> Regan teaches
>
> identifying an optimal communication path from among said communication channel based on said aggregated messages in said single multi-band, multi-protocol layer (identify the optimal network routing paths at the link layer, see col. 2, lines 5-6. As shown above, the link layer has aggregated messages in the single multi-band, multiprotocol layer); and
>
> establishing a communication session using said identified optimal communication path (see 202/204 with TX in Fig. 2. It is known in the art that once the optimal communication path is established, it will be used for establishing a communication session. Refer to cited Melick reference as evidence, see Abstract).

See Office Action at p. 3-4. Regan, at col. 2, lines 4-7, discloses that distance vector algorithms are typically utilized by bridges to identify the optimal network routing paths at the link layer (e.g., layer 2) of the OSI network model. In other words, Regan simply discloses that **optimal network routing paths are identified by using a distance vector algorithm**, such as the Spanning Tree Protocol (STP), standardized in IEEE 801.2d. Regan, at col. 2, lines 4-7 or any remaining citation, does not disclose that identifying an optimal communication path from among a communication band and a communication channel is based on aggregated messages in a single multi-protocol layer.

Accordingly, the proposed combination of Chapman, Beshai and Regan does not render independent claim 1 unpatentable, and a *prima facie* case of obviousness has not been established. The Appellant submits that claim 1 is allowable. Independent claims 11, 21, and 31 are similar in many respects to the method disclosed in independent claim 1. Therefore, the Applicant submits that independent claims 11, 21, and 31 are also allowable over the references cited in the Office Action at least for the reasons stated above with regard to claim 1.

3. **Independent Claim 41**

The Examiner has rejected independent claim 41 using the same arguments as claims 1, 11, 21, and 31 (*See* FOA, p. 2-4). However, with regard to the rejection of independent claim 41 under 35 U.S.C. § 103(a), the Appellant submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "a physical layer; a MAC layer above, and interfacing with, said physical layer; and a multi-protocol layer above, and interfacing with, said MAC layer," as recited by the Appellant in independent claim 41. More specifically, none of the references disclose a multi-protocol layer which is disposed above, and is interfacing with, a MAC layer.

Accordingly, the proposed combination of Chapman, Beshai and Regan does not render independent claim 41 unpatentable, and a *prima facie* case of obviousness has not been established.

B. Rejection of Dependent Claims 2, 12, 22, 32 and 42

1. Claims 2, 12, 22, and 32

Claims 2, 12, 22, and 32 depend on independent claims 1, 11, 21, and 31, respectively. Therefore, the Appellant submits that claims 2, 12, 22, and 32 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1. The Appellant also submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "determining based on said aggregated messages, whether at least one of said communication channels, said communication bands, and a combination of said communication channels and said communication bands provides said optimal communication path for said communication session," as recited by the Appellant in claims 2, 12, 22, and 32.

With regard to claims 2, 12, 22, 32 and 42, the Final Office Action states the following at page 4:

> For claims 2, 12, 22, 32, and 42, Chapman with Beshai and Regan teaches everything claimed as applied above including comprising determining based on said aggregated messages, whether at least one of said communication channels, said communication bands, and a combination of said communication channels and said communication bands provides said optimal communication path for said communication session (see 1, 11, 21, 31,41).

The Examiner relies primarily on the arguments stated with regard to claims 1, 11, 21, and 31. Regan, at col. 2, lines 4-7, discloses that distance vector algorithms are typically utilized by bridges to identify the optimal network routing paths at the link layer (e.g., layer 2) of the OSI network model. In other words, Regan simply discloses that

optimal network routing paths are identified by using a distance vector algorithm, such as the Spanning Tree Protocol (STP), standardized in IEEE 801.2d. Regan, at col. 2, lines 4-7 or any remaining citation, does not disclose that identifying an optimal communication path from among a communication band and a communication channel is based on aggregated messages in a single multi-protocol layer. Therefore, Regan, alone or in combination with the other references, also does not disclose "determining based on said aggregated messages, whether at least one of said communication channels, said communication bands, and a combination of said communication channels and said communication bands provides said optimal communication path for said communication session," as recited by the Appellant in claims 2, 12, 22, and 32. Accordingly, the Appellant submits that claims 2, 12, 22, and 32 are allowable over the references cited in the Final Office Action at least for the above reasons.

2. **Claim 42**

The Examiner has rejected claim 42 using the same arguments as claims 2, 12, 22, and 32 (*See* FOA, p. 4). The Appellant submits that claim 42 is allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 41. In addition, with regard to the rejection of claim 42 under 35 U.S.C. § 103(a), the Appellant submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "wherein said multi-protocol layer and said MAC layer are part of a data link layer," as recited by the Appellant in claim 42. More specifically, none of the references disclose a multi-protocol layer which is

disposed above, and is interfacing with, a MAC layer. In addition, none of the references disclose that the multi-protocol layer and the MAC layer are part of a data link layer, as recited in claim 42. Accordingly, the proposed combination of Chapman, Beshai and Regan does not render independent claim 42 unpatentable, and a *prima facie* case of obviousness has not been established.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 2, 12, 22, 32 and 42.

C. Rejection of Dependent Claims 3, 13, 23 and 33

Claims 3, 13, 23 and 33 depend on independent claims 1, 11, 21 and 31, respectively. Therefore, the Appellant submits that claims 3, 13, 23, and 33 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1. The Appellant also submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "selecting at least one of said communication channels and communication bands, and a combination of said communication channels and said communication bands for providing said communication session," as recited by the Appellant in claims 3, 13, 23 and 33.

With regard to claims 3, 13, 23 and 33, the Final Office Action states the following at page 4:

> For claims 3, 13, 23, and 33, Chapman with Beshai and Regan teaches everything claimed as applied above (see 1, 2, 11, 12, 21, 22, 31, 32). In addition, Chapman teaches comprising selecting at least one of said communication and communication bands, and a combination of said communication channels and said communication bands for providing said communication session (see Customer equipments, Input module 80, and Tx module 92 in Fig. 8).

The Examiner relies for support on Fig. 8 of Chapman. Referring to Fig. 8, Chapman discloses that the input module 80 receives customer digital data flows and it identifies those that are directed to a destination transport access point, by referring to an address table 82. The transmission module 92 emits a series of completed transport IP packets into the packet transport network, and routes the packets to the appropriate destination transport access point by reading the destination address from the packet. *See* Chapman at col. 7, lines 39-58. Chapman, at the above citation or any other citation for that matter, does not disclose any selection of a communication channel or band for purposes of establishing the optimal path communication session, as recited by the Appellant in claims 3, 13, 23 and 33. Accordingly, the Appellant submits that claims 3, 13, 23 and 33 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 3, 13, 23 and 33.

D. Rejection of Dependent Claims 4, 14, 24 and 34

Claims 4, 14, 24 and 34 depend on independent claims 1, 11, 21 and 31, respectively. Therefore, the Appellant submits that claims 4, 14, 24 and 34 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1. The Appellant also submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "locating said single multi-protocol layer as a sublayer within a data link layer," as recited by the Appellant in claims 4, 14, 24 and 34.

With regard to claims 4, 14, 24 and 34, the Final Office Action states the following at page 5:

> For claims 4, 14, 24, and 34, Chapman with Beshai and Regan teaches everything claimed as applied above (see 1, 2, 3, 11, 12, 13, 21, 22, 23, 31, 32, 33). In addition, Chapman teaches comprising locating said single multi-protocol as a sublayer within a data link layer (It is commonly understood in the field of the present invention that a layer under the networking layer is called "transport" layer ... This is in contrast to the layered model of the OSI ... The data link layer provides similar functionalities to those of the transport layer of the present description, see col. 2, lines 33-42. It can be seen that this "transport" layer is a sublayer within a data link layer).

The Appellant respectfully disagrees. Chapman, at col. 2, lines 33-42, simply clarifies that his disclosure adopts a terminology, which is contrary to the OSI layered model. More specifically, Chapman's disclosure is based on using a "transpot" layer sitting <u>below</u> the "network" layer (versus a "transport" layer sitting <u>above</u> the "network" layer in the OSI model). Chapman, at col. 2, lines 33-42 or any other citation for that matter, does not relate to specifics on how the data link layer is organized. In addition,

Chapman (or any of the remaining references) does not disclose that a single multi-protocol layer is implemented as a sublayer within the data link layer, as recited by the Appellant in claims 4, 14, 24 and 34. Accordingly, the Appellant submits that claims 4, 14, 24 and 34 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 4, 14, 24 and 34.

E. Rejection of Dependent Claims 5, 15, 25 and 35

Claims 5, 15, 25 and 35 depend on independent claims 1, 11, 21 and 31, respectively. Therefore, the Appellant submits that claims 5, 15, 25 and 35 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1. The Appellant also submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "interfacing said single multi-protocol layer above a MAC layer, said MAC layer interfaced with said physical layer that is located below said MAC layer," as recited by the Appellant in claims 5, 15, 25 and 35.

With regard to claims 5, 15, 25 and 35, the Final Office Action states the following at page 5:

> For claims 5, 15, 25, and 35, Chapman with Beshai and Regan teaches everything claimed as applied above (see 1, 2, 3, 11, 12, 13, 21, 22, 23, 31, 32, 33). In addition, Chapman teaches comprising interfacing said

> single multi-protocol layer above a MAC layer, said MAC layer interfaced with said physical layer that is located below said MAC layer (The "transport" layer defined by Chapman is within a data link layer as described in claim 1. Note that Applicant's Fig. 1 a is a block diagram of the OSI model, see Applicant's specification, P.2, lines 5-6, and OSI model is well-known in the art. Therefore it can be seen that the data link layer is located above MAC layer, and the physical layer is located below the MAC layer).

The Applicant respectfully disagrees. It is irrelevant as to how Chapman defines the "transport" layer. As explained above, Chapman's disclosure is based on using a "transpot" layer sitting below the "network" layer (versus a "transport" layer sitting above the "network" layer in the OSI model). Also, for Examiner's clarification, the MAC layer is a part of the Data Link (layer 2) layer, so the the data link layer is not "located above MAC layer", as alleged by the Examiner. Again, one of Chapman's main deficiencies is the fact that it does not disclose a multi-protocol layer, which is part of the Data Link layer *and* sits above the MAC layer. Therefore, Chapman, or any remaining reference, does not disclose interfacing said single multi-protocol layer above a MAC layer, said MAC layer interfaced with said physical layer that is located below said MAC layer, as recited by the Appellant in claims 5, 15, 25 and 35. Accordingly, the Appellant submits that claims 5, 15, 25 and 35 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 5, 15, 25 and 35.

F. Rejection of Dependent Claims 6, 16, 26 and 36

Claims 6, 16, 26 and 36 depend on independent claims 1, 11, 21 and 31, respectively. Therefore, the Appellant submits that claims 6, 16, 26 and 36 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1. The Appellant also submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "wherein said single multi-protocol layer is a super channel sublayer, said super channel sublayer being said sublayer of said data link layer," as recited by the Appellant in claims 6, 16, 26 and 36.

With regard to claims 6, 16, 26 and 36, the Final Office Action states the following at pages 5-6:

> For claims 6, 16, 26, and 36, Chapman with Beshai and Regan teaches everything claimed as applied above (see 1, 2, 3, 4, 11, 12, 13, 14, 21, 22, 23, 24, 31, 32,33, 34). In addition, Chapman teaches wherein said single multi-protocol layer is a super channel sublayer, said super channel sublayer being said sublayer of said data link layer (It is commonly understood in the field of the present invention that a layer under the networking layer is called "transport" layer ... This is in contrast to the layered model of the OSI ... The data link layer provides similar functionalities to those of the transport layer of the present description, see col. 2, lines 33-42. It can be seen that this "transport" layer, called super layer by the Appellant, is a sublayer within a data link layer).

The Applicant respectfully disagrees. It is irrelevant as to how Chapman defines the "transport" layer. As explained above, Chapman's disclosure is based on using a "transpot" layer sitting <u>below</u> the "network" layer (versus a "transport" layer sitting <u>above</u> the "network" layer in the OSI model). Again, one of Chapman's main deficiencies is

the fact that it does not disclose a multi-protocol layer, which is part of the Data Link layer *and* sits above the MAC layer. Therefore, Chapman, or any remaining reference, does not disclose "said single multi-protocol layer is a super channel sublayer, said super channel sublayer being said sublayer of said data link layer," as recited by the Appellant in claims 6, 16, 26 and 36. Accordingly, the Appellant submits that claims 6, 16, 26 and 36 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 6, 16, 26 and 36.

G. Rejection of Dependent Claims 7, 17, 27 and 37

Claims 7, 17, 27 and 37 depend on independent claims 1, 11, 21 and 31, respectively. Therefore, the Appellant submits that claims 7, 17, 27 and 37 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1. The Appellant also submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "monitoring at least a portion of said aggregated messages in said single multi-protocol layer by at least one of a network management process, a bandwidth management process, a load balancing process, a session control process and a QoS management process," as recited by the Appellant in claims 7, 17, 27 and 37.

With regard to claims 7, 17, 27 and 37, the Final Office Action states the following at page 6:

> For claims 7, 17, 27, and 37, Chapman with Beshai and Regan teaches everything claimed as applied above (see 1, 11, 21, 31, 41). In addition, Chapman teaches comprising monitoring at least a portion of said aggregated messages in said single multi-protocol layer by at least one of a network management process (network management, see col. 6, line 10), a bandwidth management process (providing services with bandwidth guarantees, see col. 4, line 64), a load balancing process (TCP is also inherently provides for resequencing of out-of-order packets which can occur when switching nodes spread load over multiple links, see col. 2, lines 65-67), a session control and a QoS management process (QoS management, see col. 8, line 51).

The Appellant respectfully disagrees. Chapman, at col. 6, line 10, col. 2, lines 65-67, or any remaining citation for that matter, does not disclose any monitoring of aggregated messages. In addition, the Examiner has not provided any reference to Chapman, Beshai or Regan, which supports the alleged monitoring functionality. Accordingly, the Appellant submits that claims 7, 17, 27 and 37 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 7, 17, 27 and 37.

H. Rejection of Dependent Claims 8, 18, 28 and 38

Claims 8, 18, 28 and 38 depend on independent claims 1, 11, 21 and 31, respectively. Therefore, the Appellant submits that claims 8, 18, 28 and 38 are allowable over the references cited in the Final Office Action at least for the reasons

stated above with regard to claim 1. The Appellant also submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "interfacing at least one of said network management process, bandwidth management process, load balancing process, session control process and QoS management process with said super channel," as recited by the Appellant in claims 8, 18, 28 and 38.

With regard to claims 8, 18, 28 and 38, the Final Office Action states the following at page 6:

> For claims 8, 18, 28, and 38, Chapman with Beshai and Regan teaches everything claimed as applied above (see 1, 7, 11, 17, 21, 27, 31, 37). In addition, Chapman teaches comprising interfacing at least one of said network management process, bandwidth management process, load balancing process, session control process and QoS management process with said super channel (It should be noted that the transport network will be much less subject to change than the public internet making it simpler to introduce quality of service features, see col. 6, lines 54-57).

The Appellant respectfully disagrees. As explained above, Chapman (or any remaining reference) does not disclose the single multi-protocol layer (or super channel layer). In addition, Chapman (at col. 6, lines 54-57 or any remaining citation for that matter) does not disclose interfacing such super channel layer with a network management process, bandwidth management process, load balancing process, session control process and/or QoS management process. In fact, Chapman does not disclose interfacing of a single multi-protocol layer (or a super channel layer) with any type of process. Accordingly, the Appellant submits that claims 8, 18, 28 and 38 are

allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 8, 18, 28 and 38.

I. Rejection of Dependent Claims 9, 19, 29 and 39

Claims 9, 19, 29 and 39 depend on independent claims 1, 11, 21 and 31, respectively. Therefore, the Appellant submits that claims 9, 19, 29 and 39 are allowable over the references cited in the Final Office Action at least for the reasons stated above with regard to claim 1. The Appellant also submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "extracting channel specific data from said single multi-protocol layer by at least one of said network management process, bandwidth management process, load balancing process, session control process and QoS management process," as recited by the Appellant in claims 9, 19, 29 and 39.

With regard to claims 9, 19, 29 and 39, the Final Office Action states the following at page 7:

> For claims 9, 19, 29, and 39, Chapman with Beshai and Regan teaches everything claimed as applied above (see 1, 7, 8, 11, 17, 18, 21, 27, 28, 31, 37, 38). In addition, Chapman teaches comprising extracting channel specific data from said single multi-protocol layer by at least one of said network management process, bandwidth management process, load balancing process, session control process and QoS management process (An encapsulation module 84 encapsulates those digital data

> flows so identified in a series of TCP segments and with a help of an IP header module 86 attaches to each transport IP packet a transport IP header, containing the address of the destination transport access point, see col. 7, lines 43-47).

The Appellant respectfully disagrees. The Examiner relies for support on col. 7, lines 43-47 of Chapman. Chapman, at this citation, simply discloses that the encapsulation module 84 encapsulates digital data flows identified in a series of TCP segments, and attaches to each transport IP packet a transport IP header containing the address of the destination access point. Chapman, at col. 7, lines 43-47 or any other citation for that matter, does not disclose extracting channel specific data from a single multi-protocol layer by a network management process, a bandwidth management process, a load balancing process, a session control process and/or a QoS management process. In fact, Chapman does not disclose any extracting of channel specific data from a single multi-protocol layer. Accordingly, the Appellant submits that claims 9, 19, 29 and 39 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 9, 19, 29 and 39.

J. Rejection of Dependent Claims 10, 20, 30 and 40

Claims 10, 20, 30 and 40 depend on independent claims 1, 11, 21 and 31, respectively. Therefore, the Appellant submits that claims 10, 20, 30 and 40 are allowable over the references cited in the Final Office Action at least for the reasons

stated above with regard to claim 1. The Appellant also submits that the combination of Chapman, Beshai and Regan does not disclose or suggest at least the limitation of "sharing channel information acquired by each of said network management process, bandwidth management process, load balancing process, session control process and QoS management process among one or more of said network management process, bandwidth management process, load balancing process, session control process and QoS management process," as recited by the Appellant in claims 10, 20, 30 and 40.

With regard to claims 10, 20, 30 and 40, the Final Office Action states the following at page 7:

> For claims 10, 20, 30, and 40, Chapman with Beshai and Regan teaches everything claimed as applied above (see 1, 7, 8, 9, 11, 17, 18, 19,21, 27, 28, 29, 31, 37,38, 39). In addition, Chapman teaches comprising sharing channel information acquired by each of said network management process, bandwidth management process, load balancing process, session control process and QoS management process among one or more of said network management process, bandwidth management process, load balancing process, session control process and QoS management process (It is another object of the invention to provide a technique of one or more connections dynamically sharing the bandwidth of a pipe created between two transport access points, see col. 3, lines 6-8).

The Appellant respectfully disagrees. As explained above, Chapman, at col. 7, lines 43-47 or any other citation for that matter, does not disclose extracting channel specific data from a single multi-protocol layer by a network management process, a bandwidth management process, a load balancing process, a session control process and/or a QoS management process. In addition, Chapman, at col. 3, lines 6-8 or any remaining citation for that matter, does not disclose any sharing of acquired channel

information among one or more of the network management process, bandwidth management process, load balancing process, session control process and/or QoS management process. Accordingly, the Appellant submits that claims 10, 20, 30 and 40 are allowable over the references cited in the Final Office Action at least for the above reasons.

The Appellant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 10, 20, 30 and 40.

CONCLUSION

For at least the foregoing reasons, the Appellant submits that claims 1-42 are in condition for allowance. Reversal of the Examiner's rejection and issuance of a patent on the application are therefore requested.

The Commissioner is hereby authorized to charge $540 (to cover the Brief on Appeal Fee) and any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

Respectfully submitted,

Date: 13-JAN-2011

By: /Ognyan I. Beremski/
Ognyan I. Beremski
Reg. No. 51,458
Attorney for Appellant

McANDREWS, HELD & MALLOY, LTD.
500 West Madison Street, 34th Floor
Chicago, Illinois 60661
Telephone: (312) 775-8000
Facsimile: (312) 775-8100

(OIB)

CLAIMS APPENDIX
(37 C.F.R. § 41.37(c)(1)(viii))

1. A method for providing enhanced connectivity in a multi-band, multi-protocol network, the method comprising:

aggregating messages from a physical layer of each communication band and each communication channel associated with each of a plurality of protocols in a single multi-protocol layer of the multi-band, multi-protocol network;

identifying an optimal communication path from among said communication band and said communication channel based on said aggregated messages in said single multi-protocol layer; and

establishing a communication session using said identified optimal communication path.

2. The method according to claim 1, comprising determining based on said aggregated messages, whether at least one of said communication channels, said communication bands, and a combination of said communication channels and said communication bands provides said optimal communication path for said communication session.

3. The method according to claim 2, comprising selecting at least one of said communication channels and communication bands, and a combination of said communication channels and said communication bands for providing said communication session.

4. The method according to claim 3, comprising locating said single multi-protocol layer as a sublayer within a data link layer.

5. The method according to claim 3, comprising interfacing said single multi-protocol layer above a MAC layer, said MAC layer interfaced with said physical layer that is located below said MAC layer.

6. The method according to claim 4, wherein said single multi-protocol layer is a super channel sublayer, said super channel sublayer being said sublayer of said data link layer.

7. The method according to claim 1, comprising monitoring at least a portion of said aggregated messages in said single multi-protocol layer by at least one of a network management process, a bandwidth management process, a load balancing process, a session control process and a QoS management process.

8. The method according to claim 7, comprising interfacing at least one of said network management process, bandwidth management process, load balancing process, session control process and QoS management process with said super channel.

9. The method according to claim 8, comprising extracting channel specific data from said single multi-protocol layer by at least one of said network management process, bandwidth management process, load balancing process, session control process and QoS management process.

10. The method according to claim 9, comprising sharing channel information acquired by each of said network management process, bandwidth management process, load balancing process, session control process and QoS management process among one or more of said network management process, bandwidth management process, load balancing process, session control process and QoS management process.

11. A machine-readable storage, having stored thereon, a computer program having at least one code section for providing enhanced connectivity in a multi-band, multi-protocol network, the at least one code section being executable by a machine for causing the machine to perform steps comprising:

aggregating messages from a physical layer of each communication band and each communication channel associated with each of a plurality of protocols in a single multi-protocol layer of the multi-band, multi-protocol network;

identifying an optimal communication path from among said communication band and said communication channel based on said aggregated messages in_said single multi-protocol layer; and

establishing a communication session using said identified optimal communication path.

12. The machine-readable storage according to claim 11, comprising code for determining based on said aggregated messages, at least one of said communication channels, said communication bands, and a combination of said communication channels and said communication bands provides said optimal communication path for said communication session.

13. The machine-readable storage according to claim 12, comprising code for selecting at least one of said communication channels and communication bands, and a combination of said communication channels and said communication bands for providing said communication session.

14. The machine-readable storage according to claim 13, comprising code for locating said single multi-protocol layer as a sublayer within a data link layer.

15. The machine-readable storage according to claim 13, comprising code for interfacing said single multi-protocol layer above a MAC layer, said MAC layer interfaced with said physical layer that is located below said MAC layer.

16. The machine-readable storage according to claim 14, wherein said single multi-protocol layer is a super channel sublayer, said super channel sublayer being said sublayer of said data link layer.

17. The machine-readable storage according to claim 11, comprising code for monitoring at least a portion of said aggregated messages in said single multi-protocol layer by at least one of a network management process, a bandwidth management process, a load balancing process, a session control process and a QoS management process.

18. The machine-readable storage according to claim 17, comprising code for interfacing at least one of said network management process, bandwidth management process, load balancing process, session control process and QoS management process with said super channel.

19. The machine-readable storage according to claim 18, comprising code for extracting channel specific data from said single multi-protocol layer by at least one of said network management process, bandwidth management process, load balancing process, session control process and QoS management process.

20. The machine-readable storage according to claim 19, comprising code for sharing channel information acquired by each of said network management process, bandwidth management process, load balancing process, session control process and QoS management process among one or more of said network management process,

bandwidth management process, load balancing process, session control process and QoS management process.

21. A system for providing enhanced connectivity in a multi-band, multi-protocol network, the system comprising:

means for aggregating messages from a physical layer of each communication band and each communication channel associated with each of a plurality of protocols in a single multi-protocol layer of the multi-band, multi-protocol network;

means for identifying an optimal communication path from among said communication band and said communication channel based on said aggregated messages in said single multi-protocol layer; and

means for establishing a communication session using said identified optimal communication path.

22. The system according to claim 21, comprising means for determining based on said aggregated messages, at least one of said communication channels, said communication bands, and a combination of said communication channels and said communication bands provides said optimal communication path for said communication session.

23. The system according to claim 22, comprising means for selecting at least one of said communication channels and communication bands, and a combination of said communication channel and said communication band for providing said communication session.

24. The system according to claim 23, comprising locating said single multi-protocol layer as a sublayer within a data link layer.

25. The system according to claim 23, comprising means for interfacing said single multi-protocol layer above a MAC layer, said MAC layer interfaced with said physical layer that is located below said MAC layer.

26. The system according to claim 24, wherein said single multi-protocol layer is a super channel sublayer, said super channel sublayer being said sublayer of said data link layer.

27. The system according to claim 21, comprising means for monitoring at least a portion of said aggregated messages in said single multi-protocol layer by at least one of a network management process, a bandwidth management process, a load balancing process, a session control process and a QoS management process.

28. The system according to claim 27, comprising means for interfacing at least one of said network management process, bandwidth management process, load balancing process, session control process and QoS management process with said single multi-protocol layer.

29. The system according to claim 28, comprising extracting channel specific data from said single multi-protocol layer by at least one of said network management process, bandwidth management process, load balancing process, session control process and QoS management process.

30. The system according to claim 29, comprising means for sharing channel information acquired by each of said network management process, bandwidth management process, load balancing process, session control process and QoS management process among one or more of said network management process, bandwidth management process, load balancing process, session control process and QoS management process.

31. A system for providing enhanced connectivity in a multi-band, multi-protocol network, the system comprising:

a physical layer for aggregating messages from of each communication band and each communication channel associated with each of a plurality of protocols in a single multi-protocol layer of the multi-band, multi-protocol network;

at least one processor adapted to identify an optimal communication path from among said communication band and said communication channel based on said aggregated messages in said single multi-protocol layer; and

said at least one processor adapted to establish a communication session using said identified optimal communication path.

32. The system according to claim 31, wherein said at least one processor determines based on said aggregated messages, whether at least one of said communication channels, said communication bands, and a combination of said communication channels and said communication bands provides said optimal communication path for said communication session.

33. The system according to claim 32, wherein said at least one processor is adapted to select at least one of said communication channels and communication bands, and a combination of said communication channels and said communication bands for providing said communication session.

34. The system according to claim 33, wherein said single multi-protocol layer is a sublayer located within a data link layer.

35. The system according to claim 33, wherein said single multi-protocol layer interfaces is located above a MAC layer, said MAC layer interfaced with said physical layer that is located below said MAC layer.

36. The system according to claim 34, wherein said single multi-protocol layer is a super channel sublayer, said super channel sublayer being said sublayer of said data link layer.

37. The system according to claim 31, wherein said at least one processor is adapted to monitor at least a portion of said aggregated messages in said single multi-protocol layer by at least one of a network management process, a bandwidth management process, a load balancing process, a session control process and a QoS management process.

38. The system according to claim 37, comprising a network management process controller, bandwidth management process controller, load balancing process controller, session control process controller and QoS management interfaced with said single multi-protocol layer.

39. The system according to claim 38, wherein said management process controller, bandwidth management process controller, load balancing process controller, session control process controller and QoS management process controller is adapted to extract channel specific data from said single multi-protocol layer by at least one of said network.

40. The system according to claim 39, wherein said management process controller, bandwidth management process controller, load balancing process controller, session control process controller and QoS management process controller is adapted to share channel information among one or more of a management process, bandwidth management process, load balancing process, session control process and QoS management process.

41. A system for providing enhanced connectivity in a multi-band, multi-protocol network, the system comprising:

a physical layer;

a MAC layer above, and interfacing with, said physical layer; and

a multi-protocol layer above, and interfacing with, said MAC layer.

42. The system according to claim 41, wherein said multi-protocol layer and said MAC layer are part of a data link layer.

EVIDENCE APPENDIX
(37 C.F.R. § 41.37(c)(1)(ix))

(1) United States Patent No. 5,521,910 (“Matthews”), entered into record by the Examiner in the June 25, 2007 Office Action.

(2) United States Patent No. 7,085,306 (“Voldman”), entered into record by the Examiner in the June 25, 2007 Office Action.

(3) United States Patent Pub. No. 2002/0131363 ("Beshai"), entered into record by the Examiner in the November 15, 2007 Office Action.

(4) United States Patent No. 6,023,733 ("Periasamy"), entered into record by the Examiner in the January 21, 2009 Office Action.

(5) United States Patent No. 6,643,292 ("Chapman"), entered into record by the Examiner in the July 20, 2009 Office Action.

(6) United States Patent No. 6,578,086 ("Regan"), entered into record by the Examiner in the June 22, 2010 Office Action.

RELATED PROCEEDINGS APPENDIX
(37 C.F.R. § 41.37(c)(1)(x))

The Appellant is unaware of any related appeals or interferences.